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10/088,464	03/19/2002	James W. Schmitkons	NOR-951A	8796
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WILLIAMS, JOSEPH L				
ART UNIT		PAPER NUMBER		
2889				
NOTIFICATION DATE		DELIVERY MODE		
05/14/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/088,464

Applicant(s)

SCHMITKONS ET AL.

Examiner

Joseph L. Williams

Art Unit

2889

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29 is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-893)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 3/02

DETAILED ACTION

The response filed on 1/28/2004 has been entered and overcomes the rejections of the claims.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-23 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohtake et al. (US 5,039,918), of record by Applicant.

Regarding claim 1, Ohtake ('918) teaches in figure 1a and 3a, and the corresponding text an apparatus for generating ultraviolet radiation, comprising: a longitudinally extending microwave chamber (2) capable of supporting standing microwave energy waves therein; a longitudinally, extending plasma bulb (1) mounted within said microwave chamber; and a pair of microwave generators (figure 3a , part 5) coupled to said microwave chamber and capable of generating a pair of standing microwave energy waves within said chamber for exciting said plasma bulb to emit ultraviolet radiation from the chamber.

Regarding claim 2, Ohtake ('918) teaches a pair of longitudinally extending tuning walls positioned on opposite sides of said plasma bulb (figure 1c, no number)

and capable of overlapping said pair of standing microwave energy waves within said chamber generally along the longitudinal length of said plasma bulb.

Regarding claim 3, Ohtake ('918) teaches a microwave chamber comprises: a pair of end walls (25, 27); a pair of side walls (13) extending longitudinally between said pair of end walls; a top wall (7); and said pair of tuning walls extending inwardly and upwardly from said pair of side walls toward said top wall.

Regarding claim 4, Ohtake ('918) teaches each of said tuning walls comprises a generally planar wall extending inwardly and upwardly from one of said side walls toward said top wall.

Regarding claim 5, Ohtake ('918) teaches each of said tuning walls comprises at least two generally planar walls extending inwardly and upwardly from one of said side walls toward said top wall.

Regarding claim 6, Ohtake ('918) teaches a longitudinally extending, microwave transparent reflector (11) mounted within said microwave chamber and capable of reflecting ultraviolet radiation emitted by said plasma bulb; and a pair of waveguides (no number) directly coupling said pair of magnetrons to said microwave chamber, said microwave chamber having a pair of openings (22-24) formed therein and each of said waveguides having an outlet port communicating directly with one of said openings in said microwave chamber.

Regarding claim 7, Ohtake ('918) teaches each of said openings has a cross-sectional area that is substantially equal to a cross-sectional area of one of said outlet ports.

Regarding claim 8, Ohtake ('918) teaches a pair of longitudinally extending tuning walls positioned on opposite sides of said plasma bulb and capable of overlapping said pair of standing microwave energy waves within said chamber generally along the longitudinal length of said plasma bulb.

Regarding claim 9, Ohtake ('918) teaches said microwave chamber comprises: a pair of end walls (22, 25); a pair of side walls (13) extending longitudinally between said pair of end walls; a top wall (7); end said pair of tuning walls (no number) extending inwardly and upwardly from said pair of side walls toward said top wall.

Regarding claim 10, Ohtake ('918) teaches each of said tuning walls comprises a generally planar wall extending inwardly and upwardly from one of said side walls toward said top wall.

Regarding claim 11, Ohtake ('918) teaches each of said tuning walls comprises at least two generally planar walls extending inwardly and upwardly from one of said side walls toward said top wall.

Regarding claim 12, Ohtake ('918) teaches an apparatus for generating ultraviolet radiation, comprising: a longitudinally extending microwave chamber (2); a longitudinally extending plasma bulb (1) mounted within said microwave chamber; a pair of microwave generators (figure 8a, part 5) coupled to said microwave chamber and capable of generating microwave energy waves within said chamber for exciting said plasma bulb to emit ultraviolet radiation from said chamber; and a pair of longitudinally extending tuning walls positioned on opposite sides of said plasma bulb and capable of

tuning said microwave chamber to generally uniformly excite said plasma bulb along its length.

Regarding claim 13, Ohtake ('918) teaches the microwave chamber comprises: a pair of end walls; a pair of side walls extending longitudinally between said pair of end walls; a top wall; and said pair of tuning walls extending inwardly and upwardly from said pair of side walls toward said top wall.

Regarding claim 14, Ohtake ('918) teaches each of said tuning walls comprises a generally planar wall extending inwardly and upwardly from one of said side walls toward said top wall.

Regarding claim 15, Ohtake ('918) teaches each of said tuning walls comprises at least two generally planar walls extending inwardly and upwardly from one of said side walls toward said top wall.

Regarding claim 16, Ohtake ('918) teaches a longitudinally extending, microwave transparent reflector (11) mounted within said microwave chamber and capable of reflecting ultraviolet radiation emitted by said plasma bulb; and a pair of waveguides directly coupling said pair of magnetrons to said microwave chamber, said microwave chamber having a pair of openings formed therein and each of said waveguides having an outlet port communicating directly with one of said openings in said microwave chamber.

Regarding claim 17, Ohtake ('918) teaches each of said openings has a cross-sectional area that is substantially equal to a cross-sectional area of one of said outlet ports.

Regarding claim 18, Ohtake ('918) teaches said microwave chamber comprises: a pair of end walls; a pair of side walls extending longitudinally between said pair of end walls; a top wall; and said pair of tuning walls extending inwardly and upwardly from said pair of side walls toward said top wall.

Regarding claim 19, Ohtake ('918) teaches each of said tuning walls comprises a generally planar wall extending inwardly and upwardly from one of said side walls toward said top wall.

Regarding claim 20, Ohtake ('918) teaches each of said tuning walls comprises at least two generally planar walls extending inwardly and upwardly from one of said side walls toward said top wall.

Regarding claim 21, Ohtake ('918) teaches method for generating ultraviolet radiation from a plasma bulb mounted longitudinally within a microwave chamber, comprising: generating microwave energy waves from at least two Sources; and coupling the microwave energy waves into the microwave chamber creating standing microwave energy waves longitudinally within the microwave chamber that excite the plasma bulb to emit ultraviolet radiation from the chamber.

Regarding claim 22, Ohtake ('918) teaches said step of coupling further comprises directly coupling the microwave energy waves into the microwave chamber.

Regarding claim 23, Ohtake ('918) teaches the step of overlapping the standing microwave energy waves within the chamber generally along the longitudinal length of the plasma bulb.

Regarding claim 26, Ohtake ('918) teaches the step of overlapping the standing microwave energy waves within the chamber generally along the longitudinal length of the plasma bulb.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24, 25, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtake et al. (US 5,039,918), of record by Applicant, in view of Yoshizawa (US Re 32,626).

Regarding claims 24, 25, 27, and 28, Ohtake ('918) teaches all of the claimed limitations except for the step of adjusting the phase relationship of the standing microwave energy waves within the microwave chamber.

Within the field of endeavor, it is desirable to adjust the phase of the standing microwave chamber for the purpose of improving the drive characteristics of the device.

Yoshizawa ('626) teaches in embodiment 5 adjusting the phase of the standing microwave chamber for the purpose of improving the drive characteristics of the device.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the driving method of Yoshizawa in the UV device of Ohtake for the purpose of improving the drive characteristics of the device.

Allowable Subject Matter

4. Claim 29 is allowed.

The following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggest a method for generating ultraviolet radiation from a plasma bulb mounted longitudinally within a microwave chamber, comprising: generating microwave energy waves from at least two sources; and directly coupling the microwave energy waves into the microwave chamber for creating microwave energy waves longitudinally within the microwave chamber that excite the plasma bulb to emit ultraviolet radiation from the chamber.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph L. Williams whose telephone number is (571) 272-2465. The examiner can normally be reached on M-F (6:30 AM-3:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minh-Toan Ton can be reached on (571) 272-2303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph L. Williams/
Primary Examiner, Art Unit 2889